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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2003904281 for a patent by BST GLOBAL TECHNOLOGIES LIMITED as filed on 12 August 2003.

I further certify that the above application is now proceeding in the name of FREDERICK MICHAEL MINITER pursuant to the provisions of Section 113 of the Patents Act 1990.

WITNESS my hand this  
Twenty-third day of August 2004

JULIE BILLINGSLEY  
TEAM LEADER EXAMINATION  
SUPPORT AND SALES



## **TITLE: Building Panels and Methods**

### **Technical Field**

The present invention relates to building panels and methods and in particular building panels and methodologies, which improve the insulation performance of habitable structures.

### **Background Art**

The types of insulation's used in the building industry can be generally categorized as bulk or sheet insulation's.

Sheet insulation as used in the building industry to date are commonly metallic foils usually laminated with paper and other materials to form blankets or wraps.

As has been acknowledged for some time metallic foils are subject to de-lamination, they are brittle, some are electrically conductive and are subject to corrosion.

Bulk insulation commonly in the forms of synthetic fibers are criticized as being toxic and sometimes difficult and uncomfortable to handle.

Particulate spray -in or loose bulk materials have a tendency to be blown around in ventilated spaces and once applied create problems for ongoing trades e.g. plumbers and electricians working in roof or wall spaces when they have a need to penetrate a wall or ceiling.

In recent times authorities in most countries of the world have regulated to improve the insulation performance of buildings and by way of example in Australia from this year insulation materials and systems must satisfy minimum performance criteria.

In some situations the required insulation (generally expressed as an R-value) is higher than individual materials are able to provide at an economic cost.

The significance of air-gaps on insulation values should not be underrated as air-gaps particularly in unventilated situations add considerably to R-values.

It is an object of the present invention to provide insulation systems that address the disadvantages of currently known systems and increase insulation values at an economic cost.

Further objects and advantages of the present invention will become apparent from the ensuing description, which is given by way of example.

#### **Disclosure of Invention**

According to the present invention there is provided a method of insulation comprising the steps of combining a bulk insulation with a reflective sheet insulation to form a panel with entrapped air spaces.

One or both major surfaces of the panel may be contoured to provide a plurality of air spaces.

The reflective material may be a laminate based on a core sheet such as paper and vapour barrier such as a metallised polyester film.

The contouring in the major surface(s) of the panel may be in the form adjacent parallel corrugations or grooves.

The air spaces may be formed by laying a reflective film over the contoured surface(s)

The panels may comprise a body having a first major planar surface and a second major surface, which is contoured.

The second major surface may comprise a peripheral border and a centrally positioned rib with the contouring being provided by flutes or grooves which may be cast or cut into cementitious material including but not limited to cast or autoclaved lightweight concrete(ALC)

The panels may be erected in a staggered formation.

Back to back panels may be secured by aT-shaped rails with the sheet material interposed between the back to back panels.

#### **Brief Description of Drawings**

**Figure 1** of the drawings shows adjacent panels and intermediate sheet according to one aspect of the present invention, and

**Figure 2** shows the panels of figure 1 and the proposed means for fixing the panels with respect to floors and ceilings, and

**Figure 3** is a plan view of a number of panels of the present invention fixed between walls or columns.

With respect to the drawings a panel according to the present invention comprises a rectangular body generally indicated by arrow 1 having a first substantially planar major surface 2 and an opposed-contoured major surface 3.

The opposed contoured surface 3 has flat peripheral edges 4 and intermediate rib 5, which also presents a flat edge coplanar with the edges 4.

Between the edges 4 and rib 5 the contoured surface is grooved or fluted in a manner which provides a plurality of adjacent cavities 6 between peaks 7, the peaks being coplanar with top and bottom edges 4, and ribs 5.

The panels may be cast panels made from cementitious materials and fillers of varying kinds including sand and synthetic materials.

The panels 1 are erected as part of a wall, floor roof or ceiling structure for a building.

In the example illustrated by figures 2 and 3 the panels are fixed back to back in the manner illustrated with a sheet material 8 interposed.

The sheet material 8 is preferably substantially impervious and may be a laminate of including a core and or a metallised plastics film.

Preferably the sheet material exhibits a high level of reflectivity.

As can be seen from the illustrations the assembly of the panels creates a plurality of closed air pockets 9 between the contoured surfaces of the panels and the sheet material.

The panels are erected in a staggered formation best exemplified by figure 3. This arrangement provides a waterproof face to each of the seams between the panels.

The panels may be fixed to top and bottom T-shaped fixture plates generally indicated by arrow 10 as illustrated in figure 2.

The edges of the flanges 11 of the fixture plates 10 may be raked to provide a run-off.

To install the panels the T-plates 10 are fixed to the ceiling structure and the floor or foundation below it. An inside panel is erected first with the ripple side facing out starting from one end of the wall and progressing to the other end.

Mastic or another adhesive can be used to fix the sheet material 8 to the ripple side of the panel and fixture plates to form a vapour barrier. The outer panel is then fixed with the ripple side facing inwards.

It is considered that the present invention provides high quality insulation, a waterproof system at an economic price in accordance with the objectives of the present invention.

Aspects of the present invention have been described by way of example only and modification and additions thereto may be made without departing from the spirit or scope thereof.

BST Global Technologies... 

A. W. WRIGHT

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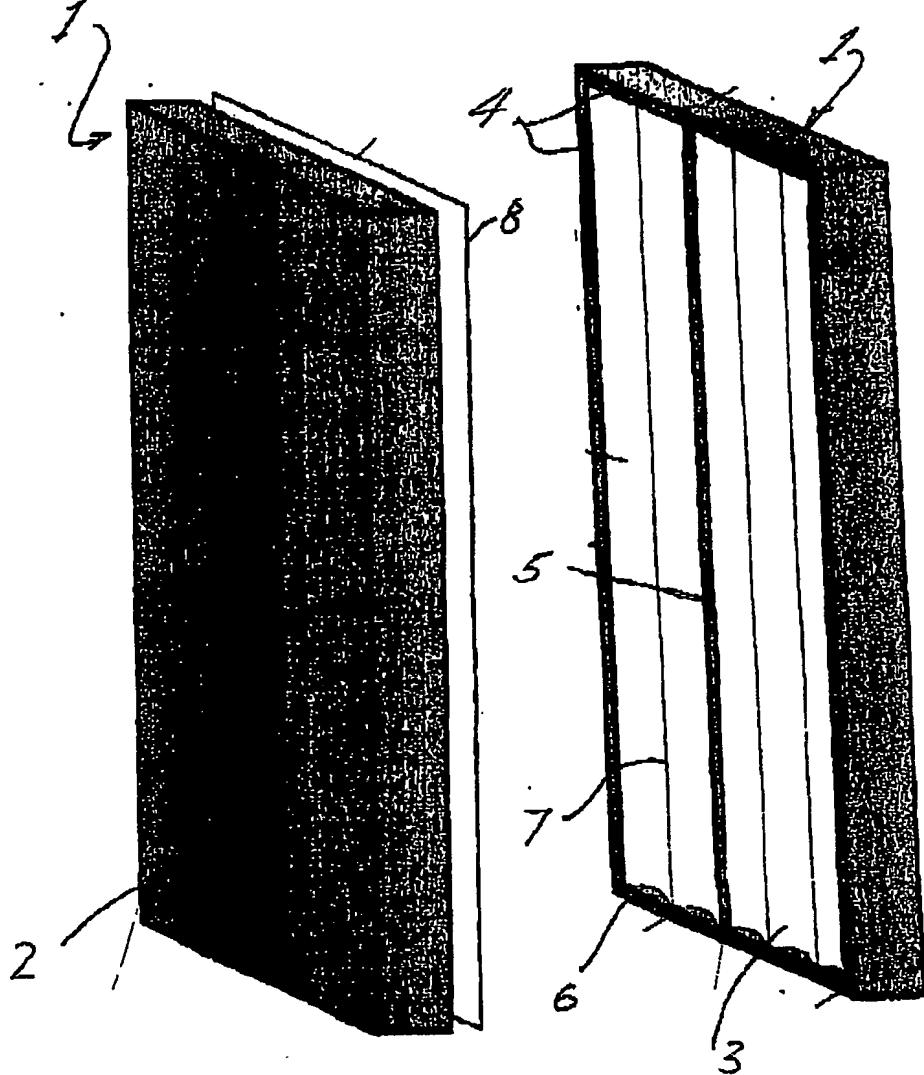
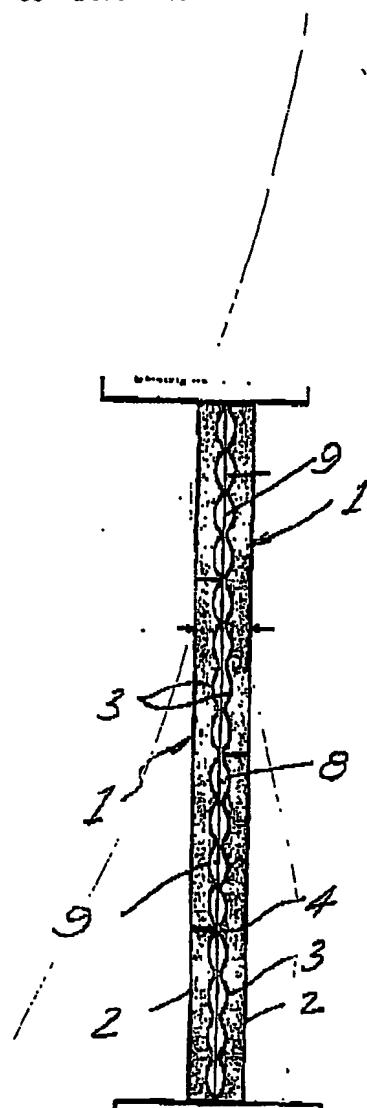
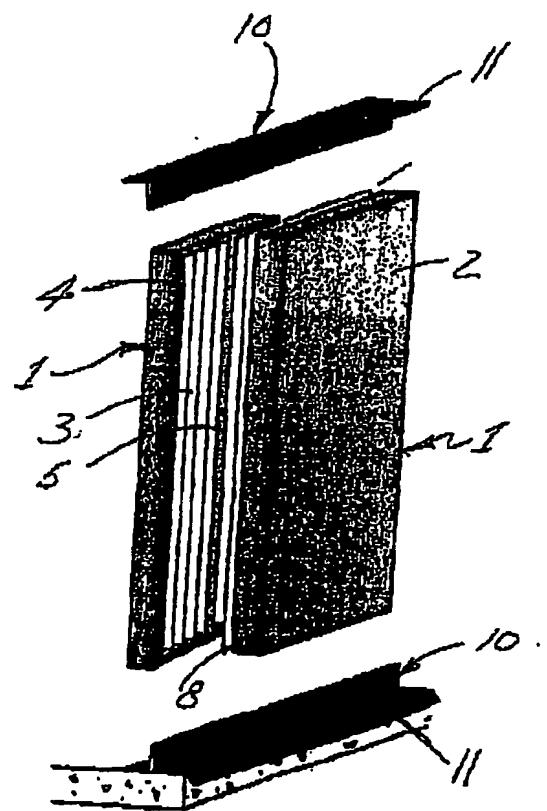


Fig. 1

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2/2

Fig. 3

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